REMARKS

The Office Action dated March 27, 2008 has been received and carefully noted. The above amendments to the claims, and the following remarks, are submitted as a full and complete response thereto.

Claims 1-17, 19-21 and 39-40 are currently pending for consideration, of which claims 1, 17, 39 and 40 are independent. In particular, Applicants have amended claims 1, 10-11, 17, and 39, and added new claim 40. It is respectfully submitted that the claim amendments and addition add no new subject matter to the present application and serve only to more particularly point out and distinctly claim the subject matter that Applicants regard as the invention. Applicants urge that all grounds for rejection in the Office Action have been addressed and that the present application is currently in condition for allowance in view of the claim amendments and addition, and the following explanations. Therefore, entry of the claim amendment and reconsideration of claims are respectfully requested.

Rejection under 35 U.S.C. §112, First Paragraph

Claims 1-17, 19-21, and 39 were rejected under 35 U.S.C. §112, first paragraph, as alleging reciting subject matter that was not described in the specification in such a way as to reasonably convey to someone of ordinary skill in the communications field that the inventors, at the time the application was filed, had possession of the claimed invention. In particular, the Office Action alleged that the phrase "preprocessing" of a frame the

determined parameters in claim 1 lacked proper support in the specification of the present application. Claims 2-16 were rejected as depending from claim 1. Similarly, independent claims 17 and 39, and claims 19-21 that depend from claim 17 were rejected on similar grounds.

In response, Applicants respectfully urge that this rejection should be withdrawn because the specification, as filed, contains amble support of preprocessing to predict the attributes of the encoded frames. In particular, Applicants note, for example, that the various components of a source-based algorithm module (SBRA) 404, 705, as depicted in FIGS. 5 and 7, receive a speech signal and perform various calculations to determine parameters of encoded frames to be formed, prior to the encoding of speech signal into frames by the various components of a speech encoder 405, 717. *See, for example,* lines 17-32 of page 18, at line 7 of page 23- line 17 of page 25, line 16 of page 26-line 19 of page 29. Therefore, since the specification as filed does support the recited limitation, Applicants urge that this rejection is improper and should be withdrawn.

However, to expedite examination and allowance of the present application, Applicants have amended the "preprocessing" limitation to alternatively recite that the parameter values are "calculated". As described above, this recitation is expressly supported in the specification as originally filed. Applicants therefore urge that this grounds for rejection is now moot in view of the present amendment. Therefore, reconsideration and allowance of the pending claims in view of this amendment are respectfully requested.

Rejection under 35 USC §102(b)

Claims 1-6, 12, 16-17, 19-21, and 39 were rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent Publication No. 2001/0023395 (Su). According to the Office Action, Su disclosed every claimed recitation of these claims. However, as will be discussed below, Su does not disclose every recited element of any of the pending claims. Thus, this rejection is respectfully traversed and reconsideration is requested.

Independent claim 1, from which claims 2-16 depend, recites a method that includes at least one stage to encode a frame using at least one codec mode, wherein an encoded frame formed by each of the codec modes includes several parameters. The stage includes first calculating values for the plurality of parameters. Secondly, one group is selected from several groups of the codec modes using the estimated values, wherein each of the groups includes at least one of the codec modes and includes a common parameter characteristic. Third, the frame is encoded with one of the codec modes from the selected group in dependence on the common parameter characteristic.

Independent claim 17, from which claims 20-21 depend, relates to an apparatus that includes a processor configured to calculate values for several parameters of an encoded frame. This frame is configured to be encoded using at least one of several codec modes, wherein an encoded frame formed by each of the codec modes includes the plurality of parameters. Next, a selecting circuitry is configured to select one group from several groups of the codec modes, wherein each of the groups includes at least one of

the codec modes and includes a common parameter characteristic. Subsequently, an encoder is configured to encode the frame with one of the codec modes from the selected group in dependence on the common parameter characteristic.

Independent claim 39 recites an apparatus that includes a means for first calculating values for several parameters of an encoded frame, where the frame is configured to be encoded using at least one of several codec modes, wherein an encoded frame formed by each of the codec modes includes the plurality of parameters. Next, selecting means select, from several groups of codec modes, one group, where each of the groups includes at least one of the codec modes and a common parameter characteristic. Subsequently, encoding means encodes the frame with one of the codec modes from the selected group in dependence on the common parameter characteristic.

As will be discussed below, Su fails to disclose or suggest all of the elements of any of the presently pending claims. In particular, as conceded in the Office Action in the discussion of claim, Su does not disclose the feature of selecting a group of codec modes in dependence of parameters determined from the encoding of the frame.

As described in the prior submissions, Su discloses a process and device for selecting between several different codec modes for encoding and transmitting human speech. In particular, Su discloses, for example in FIG. 2 and the support text, that a codec mode may be selected by examining the raw speech data. For example, it is understood that when speech volume is low, then sampling rate may be reduced to preserve bandwidth.

Alternatively, Su at Figures 8-10 and the related text at paragraphs 0558-0562, as cited in the Office Action, discloses examining available bandwidth (or other transmission channel characteristics) and then selecting one of the codec modes depending on the determined transmission channel characteristics. In this way, the selection of the codec may be configured to maximize available transmission channel resources, even if the selected codec mode is non-optimal for the raw speech data. FIG. 9 and the related text further disclose, for example, that the speech data may be processed after encoding, but before transmission to further refine the encoded frames.

The recited embodiment of the present application are directed to a different technical challenge of first calculating characteristics of the **encoded** speech frame and then using these characteristics to select an appropriate codec mode to maximize transmission quality within the available transmission channel's available resources. For example, paragraph 0015 of the present application describes how known algorithms determine a speech class before the encoding begins, such as implemented in Su. As further described in paragraph 0067 of the present application, there are significant benefits to delaying the selection of a speech codec mode, including the more accurate and appropriate selection of a codec mode.

Applicants respectfully submit that Su does not disclose first calculating encoded frame parameters and next using characteristics of the encoded frames to select a codec and to encode the frame. To clarify and better define the recited embodiments,

Applicants herein amended claim 1 to clarify the subject matter of the certain recited embodiments of the present application, as described in greater detail below.

Referring to the Office Action at the second paragraph of page 4, it is alleged that the Applicants have attempted to differentiate the pending claims from Su by asserting features disclosed in the application but not recited in the claims. Applicants respectfully urge that this interpretation of the pending claims is in error and that this misunderstanding forms a basis for which the rejection should be withdrawn. Referring now to claim 1, Applicants note the following limitations that will be designated as recitations A-D:

> Claim 1: A method, comprising:
>
> at least one stage to encode a frame using at least one of a plurality of codec modes, (A) wherein an encoded frame formed by each of said codec modes comprises a plurality of parameters,
>
> wherein said at least one stage comprises:
>
> (B) first, calculating values for said plurality of parameters;
>
> (C) second, selecting one group from a plurality of groups of said codec modes using said calculated values of said parameters, wherein each of said groups comprises at least one of said codec modes and comprises a common parameter characteristic; and
>
> (D) third, encoding the frame with one of the codec modes from the selected group in dependence on said common parameter characteristic.

Each of the limitations A-D is described in greater detail below.

Regarding limitation A, Applicants note that the recited parameters refer to aspects of the encode frame, and not the speech data itself. Applicants accept that it is well-

known within this field for technology that **an encoded frame** will have certain parameters, or characteristics, and that as described in the Su at paragraph [0075] and Table 1, each of the different codecs results in different encoded frame parameters. Applicants respectfully note that the parameters described in Su at paragraph [0075] and Table 1, refer to characteristic of a frame **following the actual encoding of the frame**.

Referring now to limitation B, Applicants note that the parameters of the encoded frame are **first** calculated, prior to the selection of the codec in limitation C and prior to the encoding of the frame in limitation D. Regarding this limitation B (as previously recited, prior to the current amendment) the Office Action referenced the pitch preprocessing in Su, for example, at FIGS. 8-9. Applicants respectfully note that in the recitations of the present application, the calculation of parameters processing is done first, prior to any selection of the codec mode(s) or encoding of the frame with the selected codec. As depicted in FIG. 8 of Su, the preprocessing of the pitch is applied in step 850, after the selection of either a middle or high bit rate in steps 810 and 830 and the encoding with either of these codecs. Thus, Applicants note that this identified pre-processing occurs after the selection of codec modes and after the encoding of the frames. Thus, it can be clearly seen in this and other portions of Su that the disclosed "preprocessing" refers to a review of an **encoded frame** to determine characteristics of encoded frame, in contrast to certain recited embodiments of the present application in which the frame parameters are calculated prior to any codec selection or encoding of the frame.

Similarly, the Office Action at page 6, first paragraph, when discussing the limitation of selecting a codec mode (as discussed in greater detail below), cited to steps 1010 and 1020 of Figure 10 of Su. As with FIG. 8, in steps 1010 and 1020, a bit rate either equal to or smaller than 6.65 kb/sec is selected and used, and the Office Action identified these steps as exemplary selections of codec modes. Applicants note that, although FIG. 10 may arguably disclose measurement of frame parameters (not admitted), the selection of codec modes in steps 1010-1020 is performed prior to any measurement. In particular , the portions of Su sited in the Office Action, such as Fig. 10 and the supporting text, describe first encoding a frame (steps 1010 and 1020), secondly determining characteristics of the encoded frame (steps 1030-1060), and only then, further processing the encoded frames according to the determining characteristics of the encoded frame (steps 1070-1090).

Applicants note, for example, that Su at paragraph [0146] that "One **frame** is divided into 3 subframes for long-term preprocessing." Therefore is clear that Su discloses first encoding the "frame" (since a frame does not exist until after encoding and would not exist with raw speech data) and then subsequently processing that encoded frame according to certain characteristics determined from the encoded frame. There is simply no disclosure in Su regarding first calculating parameters prior to encoding the frame.

Referring now to limitation C of claim 1, Applicants urge that Su does not disclose that a group of codec modes is selected based upon the first calculated parameters and

that the selected group of codec modes share a common parameter characteristic. As noted in the above discussion of limitation B of claim 1, the selection of the codec modes occurs in the recited embodiments of the present application after the calculation of the parameters. Referring to Su, for example in FIGS. 8 and 10, as cited in the Office Action, Applicants note that the identified selection of codec modes in Su in steps 810, 830 or 1010-1020 occurs without any calculation of parameters, and as described above, any calculation of the encoded frame parameters in Su occurs after the selection of the codec mode.

Moreover, continuing with limitation C from claim 1, Applicants note that the codec from Su identified in the Office Action share no common parameter characteristic. Although the Office Action asserts, for example, at the second paragraph that the "common parameter characteristic" is a broad phrase on which any characteristic can read, Applicants respectfully disagree with this finding since this claim phrase is well-defined in the present application. In particular, the recitation specifically refers to a common characteristic of a **parameter** in the selected group of codecs. For example, as recited in dependent claim 4, the common parameter characteristic can be the bit size of the parameter. No such disclosure is provide in Su.

Applicants further note that, as defined above, the recitation of a "parameter" as used and defined in the pending claims and the present application refers to an aspect of the encoded frame. See, for example, claim element A of claim 1, as described above. Therefore, claim 1 clearly recites that selected group of codec modes each shares a

common parameter characteristic such that the selected group of codecs all result in encoded frames having at least one of the common characteristic of the parameter. As described above, the selection of codecs in Su is made without any consideration of encoded parameters. Furthermore, no selection of groups of codec modes is made in Su, where the groups share a common codec parameter characteristic. Applicants note that even if this claim phrase of a common parameter characteristic is broad, the Office Action has identified no shared characteristic in various groupings of codec modes in Su, as identified in the Office Action. The only characteristic identified in Su is the bit sampling rate, and this rate is a characteristic of the codec and certainly is not a characteristic of a parameter of the encoded frame, as recited in claim 1.

Referring now to limitation D in claim 1, Applicants urge that Su does not disclose the step of thirdly encoding the frame with one of the codec modes from the selected group, after the calculating and the selection, and "in dependence on said common parameter characteristic." As noted above, Su does not does disclose group of codec having a common parameter characteristic. Furthermore, the encoding in Su is not **in dependence** of a common parameter characteristic. As noted above, Su also does not disclose determining any parameters prior to the selection or encoding of the frame. Therefore, the encoding in Su occurs prior to the an calculations of the parameters and certainly cannot be **in dependence** of a common parameter characteristic, as recited in limitation D of claim 1.

Applicants therefore urge, that at best, it could be argued (although not admitted by Applicants), that Su at FIGS. 8-10 discloses defining a desired characteristic for the encoded frame (depending on the transmission channel characteristics such as a bit rate) and selecting a codec mode to achieve this desired characteristic of the encoded frame. Applicants urge that this disclosure does not teach or obviate the recitations of claim 1. In particular, Su does not disclose calculations of parameters of the encoded frame prior to actual encoding of the frame, but rather, a selection of codec to achieve a encoded frame having desired characteristics. Processing in Su may be used to predict future raw speech data, but not characteristics of the encoded speech. Furthermore, the selection of the codec mode in Su is not dependent on the processing as recited in claim, but instead, on a desired end result. More specifically, Su discloses selection of a codec to enforce a desired final result from the encoding, not looking to an expected encoding results and selecting a codec to maximize system performance.

Consequently, Su does not disclose or suggest the recitations of claim 1 and the Office Action has not presented a correct rejection under 35 U.S.C. 102(b). Therefore, Applicants urge that claim 1 is currently in condition for allowance and all grounds for rejection have been overcome. Likewise, claims 2 and 4-16 depend from claim 1 and should be allowed on similar grounds. Withdrawal of this rejection of claims 1-2 and 4-17 and reconsideration of these claims in view of the preceding arguments are respectfully requested.

Similarly, independent claims 17, 39, and 40, although different in scope from claim 1, also contains similar recitations related to processing the speech data to calculate predicted parameters of an encoded frame before encoding the frame, and then using the results of the calculations to select appropriate codecs to encode the speech data. Thus, Su similarly fails to teach or suggest each and every limitation recited in claims 17 and 39, and for at least this reason, Applicants urge that the rejection of claims 17 and 39 in view of Su is clearly improper. Likewise, claims 20-21 from claim 17 and should be allowed on similar grounds. Withdrawal of this rejection of claims 17, 19-21, and 39 and reconsideration of these claims in view of these arguments are respectfully requested. Similarly, consideration and allowance of claim 40 are also requested.

Rejection under 35 U.S.C. 103(a)

Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Su. In particular, according to the Office Action, Su does not disclose the limitations of claims 13-15 but asserts that these feature are well known and/or inherent. However, as explained below, Su does not disclose each and every recited feature of claims 13-15. Thus, the rejection is respectfully traversed and reconsideration is requested.

As argued above, claim 1 is allowable over Su. Similarly, claims 13-15 should be allowable as depending from allowable claim 1. Because, for the rejection to be effective, Su must teach all the recitations of the base claim 1 and any intervening claims of dependent claims 13-15, the arguments presented above supporting the patentability of

independent claims 1 over Su are incorporated herein. For these and other reasons, Su does not teach or suggest the recitation of claims 13-15, and the rejection of these claims is traversed.

Moreover, when asserting inherency of a expressly recited claim limitation, the Office Action bears the burden of proof and must provide more than a mere blanket statement. No such evidence to support the inherency is suggested. Applicants respectfully note that the clear benefits of the recited limitations of claims 13-15 are described in present application and that it is legally improper for the Office Action to summarily dismiss these claimed beneficial technical features.

Therefore, withdrawal of this rejection of claims 13-15 and reconsideration of these claims in view of the preceding legal and technical arguments are respectfully requested on this basis.

Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Su in view U.S. Patent No. 6,226,607 (Chang). Similarly, Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Su in view of Chang, and further in view of allegedly well-known prior art. According to the Office Action, Su does not disclose a selection of a group of codec modes in dependence of parameters determined from the encoding of the frame but this feature is disclosed in Chang. However, as explained below, Chang does not disclose this recited feature and, therefore, does not make up for the deficiencies in Su. Thus, the rejection is respectfully traversed and reconsideration is requested.

As argued above, claim 1 is allowable. Similarly, claims 7 through 10 should be allowable as depending from allowable claim 1. Because the combination of Su and Chang must teach, individually or in combination, all the recitations of the base claim and any intervening claims of dependent claims 7 through 10, the arguments presented above supporting the patentability of independent claims 1 over Su are incorporated herein. The Action expressly conceded that Su does not teach or suggest the limitations of claims 7 through 10, and for at least the reasons provided below, Chang does not make up for the deficiencies in Su.

In particular, the cited section of Chang at FIG. 4 and column 5 discloses a conventional method in which the **raw speech data** is evaluated to determine the energy level of that speech data. In particular, Applicants note in FIG. 4 that the energy detection in step 302 occurs prior to the encoding in steps 306, 310, 314, or 316. Thus, the supposed codec mode of selecting a bit rate may depend on the raw speech data, and not a processing of the speech data to calculate parameters of the encoded frame.

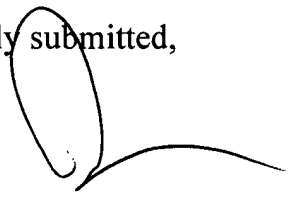
Thus, Chang does not teach or suggest calculating characteristics of an encoding frame, prior to encoding the frame, and using these calculated characteristics to select between different groups of codec modes. For these and other reasons, the combination of Su and Chang does not teach or suggest the recitation of claims 7-10, and the rejection of these claims is traversed. Withdrawal of this rejection of claims 7-10 and reconsideration of these claims in view of the preceding arguments are respectfully requested on this basis.

As discussed above, each of claims 1-17, 19-21, and 39-40 recites subject matter which is neither disclosed nor suggested in the cited prior art. Applicants submit that the recited subject matter is more that sufficient to render the invention non-obvious to a person of ordinary skill in the art. It is respectfully requested that independent claims 1, 17, and 39-40 and the related dependent claims be allowed in view of the above arguments comments and remarks.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicant's undersigned representative at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicant respectfully petitions for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,



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Enclosures: Additional Claims Transmittal
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